

TABLE 6
HATCHLING MEASUREMENTS

Total length (N=6)	Weight (N=11)
Average : 46.7 cm.	14 gms.
Minimum : 45.5 cm.	99 gms.
Maximum : 49 cm.	17 gms.

All eleven hatchlings shed their first skins between 7 and 9 days after hatching. Commencing on day 10 a variety of food was offered to them. This included small sized

skinks — juvenile *Mabuya carinata*, *M. bibroni* and *Riopa punctata* — and hatchling snakes — *Xenochrophis piscator*, *Atretium schistosum*, *Amphiesma stolata* and *Cerberus rhynchops*. However, all the hatchling king cobras refused to feed. Some responded well initially to assisted feeding — i.e., they swallowed dead snakes which were placed in their mouths. The others were force fed as a last resort. Despite these efforts the baby king cobras died one after the other, for no apparent reason, within two months after hatching.

PLOT No. 40,
III EAST STREET,
THIRUVANMIYUR,
MADRAS 600 041,
August 30, 1986.

SHEKAR DATTATRI

REFERENCES

- BURCHFIELD, PATRICK M. (1977): Breeding the king cobra at Brownsville Zoo. International Zoo Year Book, Vol. 17.
- DATTATRI, S. (1985): A note on reproduction in the flying snake *Chrysopelea ornata* (Shaw). *J. Bombay nat. Hist. Soc.* 82(3): 677-678.
- OLIVER, J. A. (1956): Reproduction in the king cobra, *Ophiophagus hannah* Cantor. *Zoologica* 41: 145-152.
- OLIVER, J. A. (1957): Feeding baby king cobras is easy (they say) — you give them milk. *Anim. Kingd.* 60: 126-127.
- ROSS, R. (1980): The breeding of pythons in captivity. Reproductive biology and diseases of captive reptiles. Society for the Study of Amphibians and Reptiles.

23. A LIST OF THE SNAKES OF THE BHAVNAGAR DISTRICT, GUJARAT STATE

Bhavnagar District is situated along the Bay of Cambay, at c. 21.46°N latitude, 72.11°E longitude. The area is arid and dry with scanty rainfall and the forests are dry thorny deciduous the rocky and hilly area of forest land is estimated to be about 15061.67 hectares in this District, while 15928.07 hectares are grasslands.

Family TYPHLOPIDAE

- (1) *Typhlops porrectus*, Stoliczka, 1871
Common, seen under stones, logs and

moist soil in gardens and also occasionally in side houses.

- (2) *Typhlops braminus* (Daudin, 1803)
Very common.

Family: BOIDAE

- (3) *Python molurus* (Linnaeus, 1758)
One young specimen was collected on Palitana hills.
- (4) *Eryx conicus*, (Schneider, 1801)
Very common. A female in captivity delivered three young in August.

- (5) *Eryx johni* (Russell, 1801)
Common.
Family: COLUBRIDAE
- (6) *Lycodon striatus* (Shaw, 1802)
Uncommon.
- (7) *Lycodon aulicus* (Linnaeus, 1754)
Fairly common, commonly found in houses.
- (8) *Lycodon flavomaculatus*, (Wall, 1907)
One specimen seen, was from the compound of Alcock Ashdown-Barges Co., at Bhavnagar.
- (9) *Oligodon arnensis* (Shaw, 1802)
Common, A banded kukri snake laid two eggs in captivity in the month of November, The eggs were 33 × 40 mm.
- (10) *Oligodon taeniolatus* (Jerdon, 1853)
Common. I collected one gravid female in August.
- (11) *Sibynophis subpunctatus* (Dum. & Bibr. 1854)
A male collected from Amargadh, was 33.5 cm. in length (*Sibynophis* is a genus of hill snakes but I collected one from the middle of Jamnagar City, I also collected a specimen from Barda hills).
- (12) *Amphiesma stolata* (Linnaeus, 1758)
Uncommon.
- (13) *Xenochrophis piscator* (Schneider, 1799)
Very common. I collected one specimen from Desainagar, Bhavnagar, which showed unusual scales on the head, Right side supralabials nine, 4th and 5th of the same size and touch the eye. Temporals 2+2 the first two are longer than posterior two. Left side supralabials eight only 4th one touches the eye 4th is bigger than 5th, Temporals 2+2 first two are smaller and short than the posterior two.
- (14) *Acrochordus granulatus* (Schneider, 1799)
Common on Bhavnagar shore and Shetrunji river estuaries.
- (15) *Elaphe helena* (Daudin, 1803)
Very common. I collected 25 specimens of this species from densely populated areas in central area of Bhavnagar city. One specimen was collected from the Railway Station by Shri Shukla which was totally golden yellow with yellow marking, the pattern being the same as in ordinary trinket snake. The eyes were pink red.
- (16) *Ptyas mucosus* (Linnaeus, 1758)
Common.
- (17) *Argyrogena fasciolatus* (Shaw, 1802)
Common, a gravid female was collected from the Alcock Ashdown & Co. Ltd. at old port Bhavnagar had a total length 180.0 cm. This is the longest specimen ever recorded. I got 23 eggs from this female. The animal died two days after collection.
- (18) *Dendrelaphis tristis* (Daudin, 1803)
Uncommon.
- (19) *Psammophis leithi* Gunther, 1869
A specimen was collected from Bhavnagar University campus.
- (20) *Boiga trigonata* (Schneider, 1802)
Common.
- Family: ELAPIDAE
- (21) *Bungarus caeruleus* (Schneider, 1801)
Common.
- (22) *Naja naja naja* (Linnaeus, 1758)
Very common.
- (23) *Enhydrina schistosa* (Daudin, 1803)
Common along the shores of Bhavnagar District.
- (24) *Hydrophis spiralis* (Shaw, 1802)
Common.
- (25) *Hydrophis cyanocinctus* Daudin, 1803
Common.
- Family: VIPERIDAE
- (26) *Echis carinatus* (Schneider, 1801)
Common, The longest specimen recorded

MISCELLANEOUS NOTES

was 78.8 cm in length (Daniel 1983). In my collection a female was collected from the compound of Alcock Ashdown & Co. Ltd., at old port Bhavnagar had a record length of 92.0 cm.

26 species of snakes contained in 20 genera belonging to 5 families have been recorded from various parts of Bhavnagar District.

Two species are being recorded for the first time from Saurashtra region of Gujarat State, namely yellow spotted wolf snake (*Lycodon flavomaculatus*) and Dumerils black headed snake (*Sibynophis subpunctatus*). In two species saw-scaled viper (*Echis carinatus*) and Banded racer (*Argyrogena fasciolatus*) the record length specimen have been recorded.

More than 20 species of snakes were collected by me are from Bhavnagar city area only. The Trinket snake (*Elaphe helena*) is commonly found in forest, fields and other places away from the human population. But to our surprise, we have collected about 25 specimens from the City area.

As it is important from the human point of view, data on the deaths recorded due to snake bites were collected from the statistical section of the Health Department, Civil Hospital, Ahmedabad for the years 1979 to 1981 (Table 1). It is evident from the figures that the people in rural area are still following their old belief and customs and very few go to hospitals for snake bite treatment.

TABLE 1
SNAKES BITE DEATHS IN GUJARAT (DISTRICT-WISE)

District	1979		1980		1981	
	Rural	Urban	Rural	Urban	Rural	Urban
1	2	3	4	5	6	7
(1) Ahmedabad	7	1	13	1	24	1
(2) Amreli	18	3	12	10	40	3
(3) Banaskantha	20	5	16	1	25	3
(4) Bharoch	15	4	23	1	34	—
(5) Bhavnagar	10	22	28	15	33	29
(6) Dang	16	—	22	—	—	—
(7) Gandhinagar	5	—	—	—	—	—
(8) Jamnagar	13	10	15	9	40	4
(9) Junagadh	21	19	20	19	22	25
(10) Kheda	30	13	20	14	47	11
(11) Kutch	3	2	16	2	28	7
(12) Mehsana	1	5	14	13	32	10
(13) Panchmahals	16	4	13	9	17	1
(14) Rajkot	17	14	19	10	35	10
(15) Sabarkantha	15	—	5	1	13	3
(16) Surat	26	1	10	10	29	4
(17) Surendranagar	4	7	8	2	18	8
(18) Vadodara	15	20	31	7	43	7
(19) Valsad	9	2	27	7	32	1
Total	261	132	312	131	512	127

MISCELLANEOUS NOTES

TABLE 2

SNAKES COLLECTED FROM BHAVNAGAR CITY AREA (BY R. V. VYAS).

NUMBERS GIVEN IN PARENTHESIS ARE COLLECTED BY SHUKLA

1	Common Name 2	1980 3	1981 4	1982 5	1983 6
(1)	Slender worm snake	1	—	—	1
(2)	Common worm snake	2	1(4)	1(2)	2(1)
(3)	Common sand boa	2(2)	5	2	3
(4)	Red sand boa	3	2(1)	—(1)	1
(5)	Barred Wolf snake	—(4)	—(7)	1(16)	1(24)
(6)	Common Wolf snake	10	15	5	6
(7)	Russell's Kukri Snake	2	3	1	2
(8)	Common Kukri Snake	4(1)	4	1	—
(9)	Striped keelback	1(1)	—(2)	—(2)	—(1)
(10)	Common trinket snake	12(3)	8(1)	3(5)	5(13)
(11)	Banded racer	8(2)	5	2	1
(12)	Rat snake	15(6)	10(6)	3(16)	1(11)
(13)	Checkered keelback Water snake	25(1)	20(49)	10(34)	8(28)
(14)	Common bronzeback Tree snake	2	5(2)	3(2)	5(2)
(15)	Common Cat snake	6(1)	1	1(1)	3(1)
(16)	Common krait	2	1	—(2)	1(2)
(17)	Indian Cobra	30(8)	18(35)	14(32)	12(43)
(18)	Saw-Scaled Viper	5	3(2)	2(1)	3(1)
	Total	130(29)	101(109)	49(114)	55(127)

As an act of conservation Mr. Shukla and his family and I collect snakes from the city (Table 2) as and when we get reports from the public and after identifying-measuring release them away from the residential areas of the city.

ACKNOWLEDGEMENTS

I take this opportunity to express my sincere thanks to Dr. B. H. Patel, Prof. & Head of the Department of Zoology, Sir P. P. Institute of Science, Bhavnagar University, Bhav-

nagar, under whose able guidance. I had the incentive to go ahead with my research work. I also wish to convey my thanks to the Director, Department of Health, Statistical section, Civil Hospital-Ahmedabad for providing me the statistical record of death due to snake bite and to the Curator, Bombay Natural History Society, Bombay for extending kind help in identifying snakes. I am also thankful to the President, Wildlife Conservation Society, Bhavnagar for helping in all aspects of my work.

LAL BUNGALOW,
DESAINAGAR,
BHAVNAGAR - 364 003,
March 5, 1985.

RAJU VYAS

REFERENCES

- DANIEL, J. C. (1983): The book of Indian Reptiles, Bombay Natural History Society, Bombay.
- STOLICZKA, F. L. (1872): Notes on Reptilian and Amphibian Fauna of Kachh (Kutch). *Proc. Asiatic Soc. Bengal, May*: 71.

24. A NOTE ON THE BREEDING HABITS OF JERDON'S
RAMANELLA, *RAMANELLA MONTANA* (JERDON, 1854)

Ramanella montana is not an uncommon microhylid in the Bombay area, at the beginning of the monsoon, but rarely seen during the other seasons of the year. I had the opportunity of studying their breeding habits at the Sanjay Gandhi National Park, Borivli, during the monsoon of 1982-83.

Breeding season and sites: The species starts to breed in the early monsoon and the breeding activity is very brief and is over within a period of 3 to 4 days. The breeding congregation of a good number of the frogs was seen in the Dahisar river of the park which has at this time a gentle flow of water. However, some of the frogs were also observed calling from a rain pool.

Call: On 20th June 1983 at 1220 hrs while it was raining heavily I heard the frogs calling from the stream. The current was very gentle and there were some stagnant pockets. The water depth was *c* 75 cm. The atmospheric temperature was 29.1°C and that of the water 28.0°C. The frogs called from the water close to the bank. The call could be syllabilised as *brong...brong...brong*. The single small vocal sac looks like a white bubble when fully inflated. On 24th June 1983 at about 1200 hrs the species was observed on both banks of the stream in heavy rain. The current was strong and the water turbid with

the temperature at 27.7°C. Litter in the form of twigs had gathered at the base of the trees on the edge of the stream. The frogs hid under the litter. Some sat above the waterlevel and were calling while others sat on the slender branches that overhung and touched the running water. On an average each call sequence was for 114 seconds. The chorus was very coarse. They were very wary of intruders and when I approached the bank, the frogs ceased calling though those on the opposite bank continued calling.

Amplexus: The amplexus was in the water and was axillary the male's forelimbs holding the female at her armpit. They were swimming freely. They swam slowly and could be caught, and though they were disturbed they continued in amplexus. A pair which was kept in a jar started laying eggs at 1145 hrs. The female lifted up the cloaca and released the eggs. After 10 seconds she again lifted up the cloaca and released more eggs. This process was continued for 15 minutes. At 1201 hrs the male released the female.

Spawn: The egg mass was obtained in the stream but in water that was more or less stagnant and had a depth of about 15 cm. The spawn was plate like with a diameter of 95 mm and the eggs similar to mustard seed were